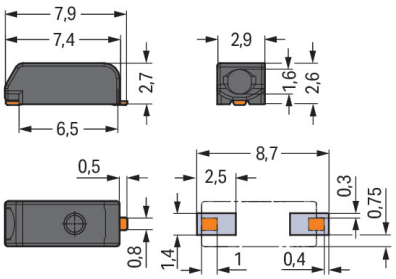
# Data Sheet | Item Number: 2059-321/998-403

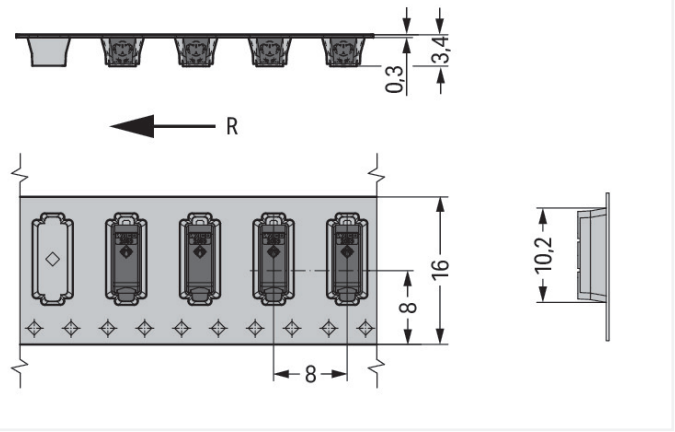
SMD PCB terminal block; 0.5 mm²; Pin spacing 3 mm; 1-pole; PUSH WIRE®; in tape-and-reel packaging; black

https://www.wago.com/2059-321/998-403

Color: ■ black




Dimensions in mm




Dimensions in mm
R = feed direction

PCB terminal block, 2059 Series, black

Quick and easy connections are guaranteed with this PCB terminal block (item number 2059-321/998-403). It is a universal connector that can be used almost anywhere, for example, as a pluggable PCB connector, panel feedthrough header, connector for rail-mount terminal blocks, or a floating connector for different mounting methods. This PCB terminal block has a rated voltage of 160 V and can handle currents up to 3 A. Conductors can only be connected to this PCB terminal block if their strip length is between 4 mm and 5.5 mm. This product incorporates one conductor terminal and utilizes PUSH WIRE®. Our PUSH WIRE® connection is the quick and easy method for connecting solid conductors. The item's dimensions are 2.9 x 2.7 x 7.9 mm (width x height x depth). This PCB terminal block is suitable for conductor cross sections ranging from 0.14 mm² to 0.34 mm² on one side and for conductor cross sections ranging from 0.5 mm² to 0.5 mm² on the other side. Up to one potential / one pole can be connected to this terminal block using one clamping point on one level. The contacts are made of copper alloy and the black housing is made of polyphthalamide (PPA GF) for insulation. The contact surface is coated with tin. An operating tool is used to operate this PCB terminal block. SMD is used to assemble the PCB terminal block. The conductor is designed to be inserted at an angle of 0°..

## Notes

| | |
|---|---|
| Note | Application notes:<br>Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to application-specific variables (component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.<br><br>Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality. |
| Recommendation | Recommendation for stencil:<br>150 µm material thickness; Pattern layout identical to solder pad layout |

## Electrical data

| Ratings per | IEC/EN 60664-1 | | |
|---|---|---|---|
| Overvoltage category | III | III | II |
| Pollution degree | 3 | 2 | 2 |
| Nominal voltage | 63 V | 160 V | 320 V |
| Rated surge voltage | 2.5 kV | 2.5 kV | 2.5 kV |
| Rated current | 3 A | 3 A | 3 A |

| Approvals per | UL 1977 |
|---|---|
| Rated voltage | 600 V |
| Rated current | 3 A |

## Connection data

| | |
|---|---|
| Clamping units | 1 |
| Total number of potentials | 1 |
| Number of connection types | 1 |
| Number of levels | 1 |

### Connection 1

| | |
|---|---|
| Connection technology | PUSH WIRE® |
| Actuation type | Operating tool |
| Solid conductor | 0.14 … 0.34 mm² / 26 … 22 AWG |
| Note (conductor cross-section) | For conductors (26 AWG) that are not rigid enough, the clamping unit must be opened using an operating tool. |
| Strip length | 4 … 5.5 mm / 0.16 … 0.22 inches |
| Conductor connection direction to PCB | 0 ° |
| Pole number | 1 |

### Connection 2

| | |
|---|---|
| Solid conductor | 0.5 mm² / 20 AWG |
| Note (conductor cross-section) | No reconnection of smaller conductor cross-sections (0.5 mm²/20 AWG) |
| Strip length | 6 … 7.5 mm / 0.24 … 0.3 inches |

## Physical data

| | |
|---|---|
| Pin spacing | 3 mm / 0.118 inches |
| Width | 2.9 mm / 0.114 inches |
| Height | 2.7 mm / 0.106 inches |
| Depth | 7.9 mm / 0.311 inches |
| Reel diameter of tape-and-reel packaging | 330 mm |
| Tape width | 16 mm |

## PCB contact

| | |
|---|---|
| PCB contact | SMD |
| Solder pin arrangement | over the entire terminal strip (in-line) |
| Number of solder pins per potential | 2 |

## Material data

| | |
|---|---|
| Note (material data) | Information on material specifications can be found here |
| Color | black |
| Material group | I |
| Insulation material (main housing) | Polyphthalamide (PPA GF) |
| Flammability class per UL94 | V0 |
| Contact material | Copper alloy |
| Contact Plating | Tin |
| Fire load | 0.001 MJ |
| Weight | 0.1 g |

## Environmental requirements

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|---|---|
| Limit temperature range | -60 … +105 °C |

## Environmental Testing

| | |
|---|---|
| Test specification: Railway applications – Rolling stock – Electronic equipment | DIN EN 50155 (VDE 0115-200):2022-06 |
| Test procedure: Railway applications – Rolling stock equipment – Vibration and shock tests | DIN EN 61373 (VDE 0115-0106):2011-04 |
| Spectrum/Mounting location | Service life test, Category 1, Class A/B |
| Functional test with noise-like oscillations | Test passed according to Section 8 of the standard |
| Frequency | $f_1$ = 5 Hz to $f_2$ = 150 Hz |
| Acceleration | 0.101g (highest test level used for all axes) |
| Test duration per axis | 10 min. |
| Test directions | X, Y and Z axes |
| Monitoring of contact faults and interruptions | Passed |
| Voltage drop measurement before and after each axis | Passed |
| Simulated service life test through increased levels of noise-like oscillations | Test passed according to Section 9 of the standard |
| Frequency | $f_1$ = 5 Hz to $f_2$ = 150 Hz |
| Acceleration | 0.572g (highest test level used for all axes) |
| Test duration per axis | 5 h |
| Test directions | X, Y and Z axes |
| Extended testing: Monitoring of contact faults and interruptions | Passed |
| Extended testing: Voltage drop measurement before and after each axis | Passed |
| Shock test | Test passed according to Section 10 of the standard |
| Shock pulse form | Half sine |
| Acceleration | 5g (highest test level used for all axes) |
| Shock duration | 30 ms |
| Number of shocks (per axis) | 3 pos. und 3 neg. |
| Test directions | X, Y and Z axes |
| Extended testing: Monitoring of contact faults and interruptions | Passed |
| Extended testing: Voltage drop measurement before and after each axis | Passed |
| Vibration and shock stress for rolling stock equipment | Passed |

## Commercial data

| | |
|---|---|
| PU (SPU) | 31800 (2650) pcs |
| Packaging type | Box |
| Country of origin | CH |
| GTIN | 4055143476584 |
| Customs tariff number | 85369010000 |

## Product Classification

| | |
|---|---|
| UNSPSC | 39121409 |
| eCl@ss 10.0 | 27-14-11-06 |
| eCl@ss 9.0 | 27-14-11-06 |
| ETIM 9.0 | EC001284 |
| ETIM 8.0 | EC001284 |
| ECCN | NO US CLASSIFICATION |

## Environmental Product Compliance

| | |
|---|---|
| RoHS Compliance Status | Compliant,No Exemption |

## Approvals / Certificates

### General approvals

| Approval | Standard | Certificate Name |
|---|---|---|
| CCA<br>DEKRA Certification B.V. | EN 60947-7-4 | NTR NL-7819 |
| CCA<br>DEKRA Certification B.V. | EN 60947-7-4 | 71-111131 |
| CCA<br>DEKRA Certification B.V. | EN 60838 | NTR NL-7720 |
| KEMA/KEUR<br>DEKRA Certification B.V. | EN 60838 | 71-106226 |

### Declarations of conformity and manufacturer's declarations

| Approval | Standard | Certificate Name |
|---|---|---|
| Railway<br>WAGO GmbH & Co. KG | - | Z00004395.000 |

## Downloads

### Environmental Product Compliance

**Compliance Search**

Environmental Product Compliance
2059-321/998-403

### Documentation

**Additional Information**

| | | |
|---|---|---|
| Technical Section | 03.04.2019 | pdf<br>2027.26 KB |

## CAD/CAE-Data

### CAD data

2D/3D Models
2059-321/998-403

### PCB Design

Symbol and Footprint
via SamacSys
2059-321/998-403

Symbol and Footprint
via Ultra Librarian
2059-321/998-403

## 1 Compatible Products

### 1.1 Optional Accessories

#### 1.1.1 Board-to-board link

##### 1.1.1.1 Board-to-board link

Item No.: 2059-901
Board-to-Board Link; Pin spacing 3 mm; 1-pole; Length: 15.3 mm; white

Item No.: 2059-901/018-000
Board-to-Board Link; Pin spacing 3 mm; 1-pole; Length: 17.5 mm; white

Item No.: 2059-901/021-000
Board-to-Board Link; Pin spacing 3 mm; 1-pole; Length: 20.5 mm; white

#### 1.1.2 Tool

##### 1.1.2.1 Operating tool

Item No.: 206-859
Operating tool; for 2059 Series; multicoloured

Item No.: 2059-189
Operating tool; made of insulating material; for 2059 Series

## Installation Notes

### Conductor termination

Insert solid conductors via push-in termination.

### Conductor termination

Easy conductor removal, e.g., via operating tool (Item No. 206-859) or “twist & pull” (max. 10 x, no reconnection of smaller conductors possible)